

Feature Extraction Performance to Differentiate Spinal Curvature Types using Gray Level Co-occurrence Matrix Algorithm

Abstract

Spinal curvature type can be detected from digital X-ray images. Experts diagnose spinal curvature for a long time to obtain accurate results. This research aims to analyze the use of image processing techniques to extract features in two types of spinal imagery, normal and abnormal (i.e., scoliosis), by applying the Gray Level Co-occurrence Matrix (GLCM) algorithm and Support Vector Machine (SVM) for the classification method. This study used 40 images divided into 4 data sets for analysis. Three distance parameters, 50, 75, and 100 pixels, and three parameters of quantization values, 8, 16, and 32, were utilized for analysis. The highest accuracy obtained from one of the specific data set was 100%, while the highest accuracy of the average of each value distance and quantization was 90%. The GLCM algorithm could differentiate the abnormality of spinal imagery.